

WHAT IS CLAIMED IS:

1. A sanitary fill valve assembly comprising:
 - (a) a housing having an inlet passage for receiving a viscous flowable material from a viscous flowable material source, an annular chamber for receiving the viscous flowable material from said inlet passage, and an outlet passage from which the viscous flowable material is dispensed;
 - (b) an ON/OFF positive controlled product dispenser for dispensing the viscous flowable material from said chamber; and
 - (c) a product flow regulator for adjustably regulating the rate of flow of the viscous flowable material into said chamber, said regulating mechanism being disposed in a flow path between said inlet passage and said chamber to at least one of reduce and increase the flow area at said flow path.
2. The assembly of claim 1, wherein said product dispenser comprises a piston cylinder.
3. The assembly of claim 2, wherein said piston cylinder includes a main piston body and a piston head disposed at a distal end thereof for dispensing the viscous flowable product from said chamber.

4. The assembly of claim 3, wherein an annular surface of said housing has a tapered wall adjacent said outlet passage forming a seat for said main piston body.

5. The assembly of claim 4, further comprising a seal mechanism for positively sealing said piston cylinder in said chamber.

6. The assembly of claim 5, wherein said seal mechanism comprises a first seal member, a second seal member and a third seal member.

7. The assembly of claim 6, wherein said first seal member is disposed on said piston head for cleaning-in-place said outlet passage to prevent dripping of the viscous flowable product during dispensation, said second sealing member being disposed intermediate said main piston body and said piston head for positively shutting off flow of the viscous liquid product during dispensation, and said third seal member being disposed adjacent said main piston body for preventing fluid leakage at a basal end thereof.

8. The assembly of claim 7, further comprising a drive mechanism for actuating said piston cylinder.

9. The assembly of claim 8, wherein said drive mechanism comprises a pneumatic cylinder.

10. The assembly of claim 1, wherein said product flow regulator comprises a regulator body and an adjustment mechanism for selectively displacing said regulator body within said housing between a downward position decreasing the flow area into said chamber and an upward position increasing the flow area into said chamber.

11. The assembly of claim 8, wherein said adjustment mechanism comprises a threaded screw and an adjustment nut, said threaded screw having a lower end connected to an upper portion of said regulator body and an upper end connected to said adjustment nut, wherein rotation of said adjustment nut and said threaded screw causes to displace said elongated regulator body.

12. The assembly of claim 8, wherein said adjustment mechanism comprises an electric actuator.

13. A sanitary fill valve comprising a housing having a flow path adapted to receive and dispense a viscous flowable material; a product dispensing piston

disposed within said housing for dispensing the viscous flowable material therefrom; and a product flow regulator disposed in said flow path for adjustably regulating the flow rate of the viscous flowable material by at least one of reducing and increasing the flow area into said chamber to accommodate viscous flowable materials having different physical properties.

14. A sanitary fill valve comprising: (a) a housing having an inlet passage, an outlet passage and an annular chamber aligned in series to create a flow path for receiving and dispensing a viscous flowable material; (b) a product dispenser disposed within said chamber and adapted to reciprocate between a first position opening said chamber and a second position closing said chamber to dispense the viscous flowable material therefrom; (c) a pneumatic actuator for displacing said product dispenser between said first and second positions; and (d) a product flow regulator disposed intermediate of said inlet passage and said chamber for adjustably regulating the flow rate of the viscous flowable material before entry into the chamber by at least one of reducing and increasing the flow area into the chamber to accommodate viscous flowable materials having different physical properties.

15. A sanitary fill valve comprising:

(a) a valve housing having an inlet passage for receiving a viscous flowable material from a viscous flowable material source, an annular chamber in communication with said inlet passage, and an outlet passage in communication with said chamber for dispensing the viscous flowable material;

(b) a product dispenser disposed within said annular chamber for drawing the viscous flowable material into said chamber and dispensing the viscous flowable material from said chamber;

(c) a sealing mechanism for positively sealing said product dispenser within said chamber, wherein said seal mechanism is also adapted to facilitate cleaning-in-place of said outlet passage during dispensation of the viscous flowable material; and

(d) a product flow regulator in communication with said chamber for adjustably regulating the rate of flow of the viscous flowable material into said chamber by reducing and/or increasing a flow area into said chamber to accommodate viscous flowable materials having different physical properties.

16. The valve of claim 15, wherein said product dispenser comprises a piston cylinder having a main piston body and a piston head disposed at a distal end thereof for dispensing the viscous flowable material from said chamber.

17. The valve of claim 16, wherein said piston head is provided with a pair of channels on an outer circumferential surface thereof for receiving a pair of seal members.

18. The valve of claim 17, wherein each of said seal members comprises an O-ring.

19. The valve of claim 18, wherein said product flow regulator comprises a cylindrical regulator body disposed adjacent said inlet passage and an regulator actuator for selectively displacing said regulator body between a first position decreasing the flow rate of the viscous flowable material into said chamber and an second position increasing the flow rate of the viscous flowable material into said chamber.

20. A process for hygienically filling a container with a viscous flowable material comprising the steps of:

(a) pumping a liquid product through an inlet into a chamber of a housing;

(b) adjustably regulating the flow rate of the liquid product before entry into said chamber by at least one of reducing and increasing the flow area into

said chamber, said regulation being adjusted based upon the physical properties of the viscous flowable material; and

(c) dispensing the liquid product by pneumatically operating a product dispenser to reciprocate said product dispenser between a first position opening said chamber and a second position closing said chamber to permit dispensing of the liquid product therefrom.

21. The process of claim 20, further comprising the step of providing a seal mechanism for cleaning-in place said chamber during said dispensing step.